

## CLAIMS:

1. A method of generating a watermark being unique to a receiver of a multi-cast transmission of multimedia data in the form of data packets, said method comprising the following steps:
  - transmitting from a source (1) at least two different copies ( $V_0[i]$ ,  $V_1[i]$ ) of each data packet (P[1], P[2],...,P[k]) having different watermarks, at least a first watermark ( $w_0$ ) and a second watermark ( $w_1$ ), respectively,
  - encrypting said copies ( $V_0[i]$ ,  $V_1[i]$ ) differently, preferably by means of different encryption keys SK[1], SK[2],...,SK[2k],
  - providing each receiver ( $R_1$ ,  $R_2$ ,..., $R_n$ ) access to only one of said two encrypted copies, thereby providing each receiver ( $R_1$ ,  $R_2$ ,..., $R_n$ ) with an unique resulting data stream (S) comprising data packets having first and second watermarks ( $w_0$ ,  $w_1$ ), wherein the order in which the first and second watermarks ( $w_0$ ,  $w_1$ ) are present in the resulting stream (S) provides the unique watermark,
  - providing the data stream (S) with a multi-bit capacity in a single layer for storing additional information.
2. A method according to claim 1, wherein the additional information is global information.
3. A method according to claim 2, wherein the additional information is at least one of copyright information, producer information, and owner information.
4. A method according to claim 1, wherein source (1) and the receivers ( $R_1$ ,  $R_2$ ,..., $R_n$ ) are linked together by means of a distribution network (2) such as the Internet.
5. A method according to claim 1, wherein the copy ( $V_0[i]$ ,  $V_1[i]$ ) to which a receiver (1) has access is determined by a sequence of random encryption keys (SK[1], SK[2],...,SK[2k]) which are sent prior to transmitting.

6. A method according to claim 5, wherein the keys (SK[1], SK[2],...,SK[2k]) are generated prior to transmission by the source (1) and stored in files.
7. A method according to claim 1, wherein the watermarks that are generated  
5 change with time as long as they are not identical, and the source keeps track of them.
8. A method according to claim 1, wherein the watermarks that are generated are more than two.
- 10 9. A method according to claim 1, wherein also an identity string derived by the source from both keys given to the receiver and the resulting stream is generated.
10. A method according to claim 1, wherein bandwidth usage is reduced by optimizations, for instance by not watermarking all packets, for instance by watermarking  
15 last ten minutes of a movie.
11. A source (1) for transmitting multimedia data to receivers ( $R_1, R_2, \dots, R_n$ ) of a multicast transmission, said source comprising operational means (10) further comprising or connectable to transmitting and encryption means (20) which together:
- 20 -read data packet  $i$   $P[i]$ ,  
-create at least two watermarked copies  $V_0[i], V_1[i]$  of data packet  $i$ ,  
-get two encryption keys  $SK[2i-1]$  and  $SK[2i]$ ,  
-encrypt the watermarked copies  $V_0[i], V_1[i]$  of data packet  $i$   $C_0[i]=E(V_0[i], SK[2i-1])$  and  $C_1[i]=E(V_1[i], SK[2i])$ ,  
25 -add additional information, typically global information such as copyright using the data packets,  
-transmit  $C_0[i]$  and  $C_1[i]$  together with  $i$ , where  $i=1, 2, \dots, k$ ,  
via a network to the receivers( $R_1, R_2, \dots, R_n$ ).
- 30 12. A source according to claim 11, wherein the operational means (10), transmitting means and encryption means (20) are implemented as software.
13. A receiver for receiving multimedia data comprising receiving and decrypting means (30), which together:

- receive at least two packets:  $C_0[i]$  and  $C_1[i]$ ,
- get the decryption key for packet  $i$ :  $RK_r[i]$ ,
- try to decrypt both packets with key  $RK_r[i]$ ,
- receive global information,

- 5   whereby only one packet will decrypt into a proper data packet:  $V_{ji}[i] = D(C_j[i], RK_r[i])$ ,  $j_i \in \{0, 1\}$ ,
- decode and render  $V_{ji}[i]$ .

14.           A system comprising a source (1), receivers ( $R_1, R_2, \dots, R_n$ ) and an intervening
- 10   distribution network (2) for realizing a method of generating a watermark being unique to a receiver ( $R_1, R_2, \dots, R_n$ ) of a multicast transmission of multimedia data in the form of data packets, said method comprising the following steps:
- transmitting from a source (1) at least two different copies ( $V_0[i], V_1[i]$ ) of each data packet ( $P[1], P[2], \dots, P[k]$ ) having different watermarks, a first watermark ( $w_0$ ) and a second
  - 15   watermark ( $w_1$ ), respectively,
  - encrypting said copies differently, preferably by means of different encryption keys  $SK[1], SK[2], \dots, SK[2k]$ ,
  - providing each receiver ( $R_1, R_2, \dots, R_n$ ) access to only one of said two copies ( $V_0[i], V_1[i]$ ), thereby providing each receiver with an unique resulting data stream (S) comprising data
  - 20   packets having first and second watermarks, wherein the order in which the first and second watermarks ( $w_0, w_1$ ) are present in the resulting stream (S) provides the unique watermark,
  - providing the data stream (S) with a multi-bit capacity in a single layer for storing additional information.

- 25   15.           A system according to claim 14, wherein the source is a server and the receivers are clients.